

## **Appendix A. Summary of Proceedings**

Opening remarks were made by Sally T. Hillsman, deputy director of the National Institute of Justice (NIJ), and by forum organizers Henry H. Brownstein and Lynda Erinoff.<sup>1</sup> Dr. Brownstein is director of the Drugs and Crime Research Division of NIJ. Dr. Erinoff is health science administrator at the Epidemiology Research Branch of the National Institute on Drug Abuse (NIDA). Roger Conner, director of Search for Common Ground in America, served as facilitator of the forum discussions.

Dr. Hillsman explained the origins of the collaboration between NIJ and NIDA. In the Omnibus Crime Control Act, as amended in 1976, Congress asked the two agencies to explore the relationship between drug abuse and crime. That year NIJ and NIDA formed an interdisciplinary study team to review state-of-the art knowledge about drugs and crime and to recommend a research agenda. NIJ published the agenda—essentially a literature review—in 1980, and the resulting research significantly advanced knowledge of the drugs-crime relationship. However, a great deal remains to be done. Dr. Hillsman noted that in a recently released report,<sup>2</sup> the National Research Council (NRC) recommended that NIJ and NIDA collaboratively undertake research to meet the challenge of informing public policy in the area of drug use.

Dr. Hillsman noted the amount of research being done on drugs and crime makes the field increasingly relevant to policy and practice. She reflected that 25 years after the establishment of the initial NIJ and NIDA collaboration, the two agencies are welcoming researchers to this Forum and are anticipating that the Forum will stimulate another extraordinary era of interest and productivity in the field. Although a great deal has been learned about drugs, drug use, drug abuse, drug markets, and drug law enforcement, the agencies and the scholarly community remain ill-informed about the complexities and nuances of drugs-crime interrelationships.

She emphasized the need for a focused research agenda in which researchers target specific questions and the most effective methods. Researchers who work for Federal agencies need to know how scarce public funds will be spent to make the most significant contributions in this area. All Federal, State, and local policymakers and practitioners need to know which policies and programs will be effective in producing healthier and safer communities. Dr. Hillsman pointed out that NIJ and NIDA have played essential and complementary roles in creating a solid scientific foundation for informed policies and practices, and that with the help of forum participants, the two agencies will take up the challenge posed by NRC. That challenge is clearly echoed by policymakers and practitioners throughout the country, who are turning to the research community to contribute sound and relevant knowledge to the Nation's deliberations about drugs and crime.

Dr. Brownstein commented that the early and mid-1980s and through the early 1990s had seen a great deal of interest in drugs and crime research. Then, in the mid- and late 1990s, research seemed to have focused on particular applied or practical areas. He suggested there is a need for more theoretical research and assimilation of the knowledge accumulated during the 20th century. He noted that the methods and technology to make this possible are now available.

Dr. Erinoff noted that Dr. Brownstein designed the framework for the forum and obtained the funding for it. He made certain that the public health perspective was included and took a hard look at previous research, including the *tripartite model*, which he and Dr. Paul Goldstein had developed. Dr. Erinoff expressed hope that all forum participants would emulate Dr. Brownstein in critically reviewing current research. She noted that when NIDA staff had to choose someone to write the forum paper that presented the public health perspective, they asked Dr. James Anthony to do so and to look “outside the box.” She appealed to the attendees to do the same: to move outside their own frameworks.

### **“At the Intersection of Public Health and Criminal Justice Research on Drugs and Crime”**

*James C. Anthony with Valerie Forman*

The recent focus of Dr. Anthony’s research has been on influences that take a user from initial use of a drug toward drug dependence and on factors that account for that transition. In discussing some of the directions in which the field of drugs and crime research should be headed, he noted possible genetic vulnerabilities to drug abuse, how those vulnerabilities might influence drugs-crime relationships, and cognitive science applications of current interest to NIDA.

Dr. Anthony noted his work in developing a conceptual framework for identifying future research in this area. The framework consists of a matrix that presents the *rubrics*, or the main questions asked, in epidemiology or public health research: quantity, location, causes, mechanism, and prevention and control. These rubrics are placed along the vertical axis of the matrix. The five rubrics were discussed in relation to the ecological concept of scale, which defines the level at which a subject is studied from the microcosmic to the macrocosmic; that is, from genes at one end to policies regulating nations or global relationships at the other. Scale is placed across the horizontal axis. Each location on the matrix where rubrics and scale intersect represents an area of past or current research. Some units are filled, indicating past or current research; others are empty, indicating that little research has been done. Evidence that crosses several cells is termed *broadband research*; that is, research that cuts across domains and levels of scale.

**Discussion: Most helpful ideas**

**Scale: A concept or a method?** Dr. Anthony was asked to elaborate on the concept of scale and how he interpreted it as applying to the biological and social aspects of his work.

Dr. Anthony responded with an example from the field of ecology. For ecologists, scale is the way one thinks about *geocoding*, in which trends are followed in a census tract or a metropolitan area. Using a technique called two-dimensional and three-dimensional wavelet analysis, the ecologist allows the data to evoke the scale. When studying migratory birds, for example, ecologists infer the scale from the migration pattern of the birds. Ecologists tend to work upward and outward from the smaller level or scale of the organism toward the larger level or scale of the forest or the continent. In Dr. Anthony's own approach, he worked inward, in the direction of methods microscopic in scale. This is in the spirit of the ecological concept of scale, but is a twist on that concept, which has been used in studies of delinquency in relation to such neighborhood characteristics as social cohesion.

When asked whether scale should be viewed as a methodology, Dr. Anthony responded that it should be viewed as a concept. Although scale is not strictly methodological, it can guide researchers toward methodologies. He applied it in the context of drugs and crime to provide guidance on how NIDA and NIJ can work together to foster the next generation of research.

NIJ, Dr. Anthony suggested, should not establish the kind of biobehavioral laboratories required for research on the genetics of the relationships between drug use and crime. Rather, it may be wiser to reinforce NIDA's investment in those areas, with the two agencies coming to some agreement. He recommended the same approach for directing, controlling, and planning research on the pharmacological effects of drugs on aggression and on the cognitive functions. Arrangements should be made for research where substantial investment has already been made in biobehavioral laboratory domains. With respect to national and global policies, however, NIDA's research agenda has not been strong. NIJ can fill this gap. NIDA has supported organizations and operations research on drug dependence for correctional officers, police, and postrelease juvenile justice programs. In this area, the agendas of the two agencies overlap, and it is an area in which they both should be working.

**Genetics of drug dependence.** Dr. Anthony was asked how much progress has been made in identifying genes or constellations of genes that might predict dependence. He was also asked whether he thinks researchers will discover an overall genetics of dependence, as opposed to highly specific genetic links that predict dependence on particular drugs, each involving different genes or sets of genes and their protein products.

Dr. Anthony responded that in the immediate future, genetic polymorphisms<sup>3</sup> would be examined one at a time for effects on drug dependence, but it will probably be 5 to 10 years before researchers understand the covariation of specific polymorphisms in a way that will allow them to measure shared diathesis<sup>4</sup> with respect to drug dependence. He expects researchers to find that different genes regulate responses to different drugs. He cited as an example the finding that genes regulating the liver's metabolism of alcohol do not appear to have much of an effect on cocaine metabolism.

One issue to be addressed in this context is whether polymorphisms sort people into different latent classes of vulnerability rather than arraying them on an underlying dimension of genetic vulnerability. Dr. Anthony expressed hope that new interventions in areas like obesity, where the array of known genes and polymorphisms is much broader than those for drug dependence, will open up the possibility of studying gene-environment interactions in a way that can guide NIDA's research agenda on genetics and drug dependence.

A forum participant suggested that the distribution of drug use in society is wide enough that genes could in fact play a major role in drug use. However, looking at acquisitive crimes, violent crimes and, in particular, the intersection of drug use and crime and the types of people most likely to be involved in both, we do not see those activities distributed throughout society in a way that suggests such a role. It was further suggested that NIDA should not place a lot of emphasis on genetic research. Rather, social science research should be emphasized because that is where researchers are more likely to find answers.

**Costs versus benefits of genetic neuropharmacology research.** The intersection of the genetic neuropharmacology and social behavioral components of drug use was seen as a key element of Dr. Anthony's paper. A key issue is whether and how funding for this research can be improved. Researchers who seek funding from NIH or NIDA to conduct sophisticated urine specimen tests, such as those using gas chromatography/mass spectroscopy (GC/MS) know the cost is about \$56 per drug tested per GC/MS test. They also know the cost of genetic testing is much higher, at about \$500 per specimen. Given the huge price differential, the cost-benefit balance becomes an important consideration, making it difficult to decide whether to conduct a social science survey in combination with biological data collection and genetic testing. Dr. Anthony was asked to comment on the implications of these issues for funding.

He responded by encouraging the participants to think about this problem the way they would think about the evolution of computing speed and costs. Researchers now are able to use multilevel models in their research due to the always-increasing inexpensive computing speed available today. Because change is occurring at a similar rate in assays

for genes, advances made by microarray technologists will cause the price of these tests to fall. The time this change will take is part of the reason Dr. Anthony projected it will be 5 to 10 years before researchers are able to understand covariation between polymorphisms in the areas of drug dependence and complex behavior such as criminal offending. Ten years might even be an optimistic projection of the amount of time needed because, ultimately, researchers want to identify the environments that modify the expression of the genes. This calls for both observational studies and experiments. For example, it took approximately 10 to 15 years between identification of apolipoprotein-4 for Alzheimer's disease and recent work on interventions.

**Types of crime to be addressed.** One participant commented on Dr. Anthony's statement that criminal behavior and drug use both affect a person's social standing. The questioner inferred from Dr. Anthony's statement that the effect is negative and suggested that there are probably situations in which it is positive. Furthermore, an implicit assumption made at the forum is that in discussions about the drugs-crime relationship, researchers are dealing with one kind of crime. However, that relationship (if there is one) may exist in a correlate sense, involving economic crime, financial crime, cybercrime, and other types of crime. The consequences of that relationship, which researchers in their current analyses imply exists, cannot be proven. The question posed was whether the forum was focusing on a particular type of crime, such as street crime. If so, it should have been specified, because it would influence the kind of research agenda that participants would want to shape.

Drs. Brownstein and Erinoff responded that, for the purposes of the forum, they were not defining crime in any narrow sense. They wanted forum participants to think more broadly and include the effects of alcohol in the discussion. Forum participants were urged to keep in mind that the basis in biological science for a relationship between alcohol and aggression is the strongest for any drug.

Further comment by participants focused on the millions of episodes of drug use that are not associated with crime. How, it was asked, could these be reconciled with the framework suggested by Dr. Anthony? The discussion also addressed whether drug-related violence is instrumental; that is, whether it serves a purpose that promotes the perpetrator's interests. Transcripts of interviews with drug sellers, which a participant had reviewed before the forum began, contained descriptions of violent activities that indicated the violence is instrumental. Most of the actions described in these transcripts, which were not taken from a random sample of drug dealers, did not appear to be the result of impaired functioning or intoxication. Rather, they were quite deliberate, instrumental acts. One participant noted that in discussing crime, the forum was addressing property crime or violent crime and not including other acts that society also defines as crime, such as the use of the drug.

**Impact of IRBs on social science research.** The impact of institutional review boards (IRBs) on some lines of research recommended at the forum were discussed in the context of potential to stifle social research, especially research on juveniles. A participant suggested that researchers would know less about drugs and crime than they do now if current human-subject standards had been in effect in the past.

**Understanding the roots of misbehavior.** Dr. Anthony was asked about integrating the micro and macro levels of research, specifically, their effects on funding, policies, and research on biological influences on drugs and crime.

He responded by characterizing misbehavior as a phenomenon rooted in the origins of the human species, family heritage, and social structure. The more researchers understand about these factors, the more they can use that understanding to shape policies and perhaps foster a more civilized society.

**Growth trajectories and the ecodevelopmental trajectory model.** The section of Dr. Anthony's paper that dealt with temporal relationships and growth trajectories raised the question of the degree to which interventions affect growth trajectories. Changes observed lately in drug markets, and in the crack markets in particular, indicate a growth area only among senior citizens. This growth trajectory, which begins at age 60, is not what would normally be found. Another observed trajectory involves young men who were well behaved between ages 18 and 25 who begin to misbehave when they are between 30 and 40 years old. The questioner asked whether those trajectories are outcomes produced by attempts to intervene and if so, what this says about growth trajectories.

Dr. Anthony responded that the sense in which he discussed growth trajectories was not related to the trends the questioner described. Rather, it was in the context of the ecodevelopmental trajectory model. Conceptually, this model cuts across the levels of scale. The characteristics of an individual, over time and over development, are modulated by the social characteristics of the peer group, the family, or society. Thus, there is reciprocity over time between the predispositions of an individual and the environment. An example is the growth of illegal income, or the proportion of annual income earned through criminal behavior, by the young men the questioner cited. One might ask, given one set of regulatory conditions, what those growth trajectories would look like under another set of regulatory conditions.

Dr. Anthony commented further that the paper presented by Dr. McBride noted that State-by-State variations in drug regulations give researchers opportunities for study. He had also discussed with Dr. MacCoun the contrasts between growth trajectories for marijuana involvement by young people in Amsterdam in contrast to young people in a comparable city in the United States. The more ready availability of cannabis might have

an increased impact on the growth curve if the young people smoke more. With respect to the cannabis itself, the trajectory might decline if the young people segregate into heavier or lighter users, in contrast to young people subject to the current regulatory scheme in the United States. These developments would guide researchers toward some crossnational research to look developmentally, over time, at the young people's dispositions. Those dispositions might be to maintain a flat trajectory in drug use, to shift from one drug to another, or to display a declining trajectory in drug use.

Turning to the question of which intervention would make a difference, Dr. Anthony commented that he had started off hoping to conduct policy analyses in this area but had decided that the observational data were not good enough for that kind of work. He questioned whether the time is right for social experiments that would allow researchers to contrast one regulatory condition with another. In addition, econometricians have convinced him that there may be problems even with randomized experiments, so researchers may not ever be able to collect definitive evidence in this area. Whether a researcher's stumbling on something might always be better than what can be designed in advance is a problem of constructivism.

#### **Discussion: Problematic ideas**

**Mortality and morbidity due to drug-use-related injuries and diseases.** A question was raised about the usual focus of public health research on interventions to reduce mortality and morbidity. Dr. Anthony's paper focused on crime as an outcome, but other forms of mortality and morbidity are also associated with the relationship between drugs and crime. One is injury resulting from the violence inherent in the drugs-crime nexus, and one can go beyond that to infectious diseases associated with use of drugs. It is possible to view the correctional system, where a great many drug users are incarcerated, as an opportune site for public health interventions. About 15 to 35 percent of all infectious disease cases, from HIV infection to tuberculosis, passed through a correctional institution in the past year. Dr. Anthony was asked whether these issues should be part of the public health focus on the drugs-crime nexus.

He responded in the affirmative, stating that NIDA has an active research portfolio in interventions in criminal justice environments and is likely to increase its investments in that area. He suggested that this would be another area in which NIJ and NIDA could coordinate.

Dr. Anthony commented on a point not included in his paper that relates to the pharmacological model for the tripartite approach. He thought that in the next 5 to 10 years researchers will see some interesting findings from longitudinal studies of cocaine-exposed children. These studies will demonstrate, he thinks, that it is not the children's drug use that leads to their aggressive behavior, executive dysfunctions, or subsequent

criminal behavior. Rather, they will demonstrate is that it is cocaine use by their parents or the lifestyle associated with cocaine use by their parents. This will be an interesting new line of research and a new way of thinking about that part of the tripartite model.

**Evidence linking drug use to aggression.** Dr. Anthony was asked about the nature of the experimental evidence linking the use of certain drugs to aggression and whether that evidence is as strong as the evidence linking aggression to alcohol use.

He responded that when studied under experimental paradigms, the use of drugs like methamphetamine, cocaine, and the amphetamines results in aggression under certain conditions. If one looks outside the laboratory and examines comorbidities, one of the strongest co-occurrences is drug dependence and alcohol dependence. Cocaine dependence can be treated, for example, but if the subjects continue to drink heavily, they will still be involved in alcohol-associated criminal behavior. This is a complex problem in the societal environment, but that complexity should not blind researchers to the clear experimental evidence linking certain drugs, especially the psychostimulants and drugs like phencyclidine (PCP), to aggression revealed in laboratory studies.

Among the complexities of this issue is that the drugs have different effects at different doses. That is to be expected and does not contradict the causal inference based on effects that might be observed at specific doses. When violence is observed in people who are using PCP, it is generally seen in those who have ingested very large doses. A similar phenomenon is observed in methamphetamine users who have been on runs that lasted a weekend or longer. The resulting paranoia, suspiciousness, and other effects end in violence.

Dr. Anthony responded to a comment that violent drug users have typically also used alcohol by citing instances in societies where alcohol is not widely used and instances in which methamphetamine users who are not drinkers are arrested for aggressive behavior. Although the co-occurrence of methamphetamine and alcohol use is a palpable association, there are exceptions.

**Drug-related corruption.** A comment was made about important topics that appear to have been neglected in research conducted in the 1980s and 1990s. One such topic is drug-related corruption. It is a crime and it is related to drugs, but researchers do not write much about it. Examples cited included instances in which officials are involved in bribery, perjure themselves, or otherwise break the law to obtain convictions.

**Time-lagged effects and crime.** A second neglected issue is time-lagged effects. In applying the tripartite framework, researchers usually think in terms of crimes that occur relatively soon after the drug activity. However, people may also use drugs, become

addicted, drop out of the labor market, and end up homeless. They may stop using drugs, but 2 years later they are picking pockets to buy food because they cannot find a job. It need not be the case that economic-compulsive crime means only stealing to obtain drugs within the next few minutes.

There also are children who suffer because of abuse or neglect at the hands of addicted parents. Researchers should consider not only the “cocaine babies” who were exposed in utero, but also, children who were abused as 2-year-olds and commit crimes 20 years later. This issue has been neglected because of the focus on the activities of users and sellers proximate to the drug activity. Researchers should take a broader and more holistic view of the types of crime they should be thinking about in drug-related crime research. A suggestion was made to strike the word crime, because the parent who is inattentive to a child, for example, may not cross the line into criminality.

### **“Research on Drugs-Crime Linkages: The Next Generation”**

*Robert MacCoun, Beau Kilmer, and Peter Reuter*

Dr. MacCoun acknowledged the importance of the need to define crime more broadly and to include the study of corruption in future research. He and his coauthors had focused on street crime and proposed some consensus principles on causal directions that they thought would be widely accepted in the drugs and crime research community. He also acknowledged that the research reviewed represented enormous bodies of work.

#### **Discussion: Most helpful ideas**

**Victimization and the tripartite framework.** Dr. MacCoun offered a clarification of the victimization issue as it relates to the tripartite framework. Victimization was initially included in the framework as a subcategory within the category of psychopharmacology. But the concept of victims is difficult to establish in the real world. In one study, for example, participants in 40 percent of the violent events were classified as codisputants. The researchers could not determine who was a victim and who was a perpetrator.

**The four-cell scheme for classifying drug markets.** Reintroduction of the four-cell design for describing drug markets was considered a strength of the paper. In that design, markets are classified according to whether buyers and sellers live in or outside the area where drugs are sold. Although there has not been a great deal of research on the operationalization of markets and the consequences of each type of market, the approach was regarded as a useful policy paradigm. If researchers can work with local law enforcement agencies to identify the distribution of those types of markets and their locations, they will be one step closer to helping the agencies implement policies appropriate for the markets in particular communities.

**Drug supply.** Two comments were offered about drug supply. One addressed outdoor versus indoor markets. The suggestion was that if markets moved indoors, the ability of law enforcement agencies to drive down the supply of drugs would increase because the agencies could use such technologies as wiretaps. The other comment was that incapacitation is largely a function of supply. That is, eliminating dealers may reduce drug availability, although new dealers may take their place. The Federal antidrug effort does not make a large dent in the supply. One operation conducted in the 1980s that targeted a jungle laboratory seized several tons of cocaine but had no impact on the cocaine supply because the dealers had five or six other laboratories.

**Clarifying legalization.** Dr. MacCoun responded to a favorable comment about his raising the issue of legalization by clarifying his use of the term. It is very difficult, he said, to discuss alternatives to the current system because the debate tends to focus on two models that are at polar extremes: a free market in drugs and some version of prohibition. A range of possibilities exists between these ends of the spectrum, and in examining European models, researchers are looking at countries that have legal prohibitions yet are signatories to international agreements on drugs. The word legalization must be used cautiously because it implies commercialization. The Swiss model, for example, is an incremental model and is heavily regulated, thereby costly to apply.

Rather than studying the issue of drugs, crime, and their connections, more time could be spent on the connections among drugs, crime, and policy and the effect of their interaction. There are opportunities internationally to examine innovations in policy, which by no means constitute legalization in the sense of commercialization but are nevertheless more substantial than the policy variations typically observed in the United States. If one accepts the premise that drugs, crime, and policy all interact, researchers could learn from instances in which policy varies. They could, for example, conduct empirical data collection on experiments conducted in other countries in an effort to understand drugs-crime-policy links.

Dr. MacCoun offered an example of an opportunity of this kind that has not been addressed. In the 1970s, Italy depenalized (that is, removed the penalties for but did not legalize) personal possession of all drugs that are prohibited in the United States. Italy maintained depenalization until 1990, repenalized that year, then depenalized again in 1993. Researchers could conduct archival research to examine the effects of these policy changes.

A participant offered two examples of other kinds of opportunities for international research. One opportunity exists because of the externalities of U.S. drug policy in relation to drug use by young people outside the United States (in Latin America, for example). The United States has a global impact, because of what it does domestically. This has been

neglected in research that focuses on the United States. The second example is societies where the use of intoxicating substances is common and the link to criminal behavior is absent. This presents another opportunity for international research. Although policy variations are more diverse outside the United States, other countries lack the data infrastructure we have here, which complicates research efforts.

Researchers are on the brink of being able to capitalize on research on the temporal sequencing of policy interventions. The analytic framework for drug policy pits the various components of policy against each other in a battle for resources. Conflicts about implementation can be found at the Federal, State, and local levels. But researchers can develop first-order models and simulations to anticipate epidemics and collateral problems that may be associated with epidemics, prevent epidemics, address epidemics early on in a cycle, and address them later on in a cycle. This would allow consideration of more dynamic policy/resource allocation.

### **Discussion: Problematic ideas**

**Flawed methodology.** A general question about methodology was prompted by Dr. MacCoun's statement that the Swiss experiment is flawed methodologically. Dr. McBride had made a similar point in his paper, noting that research on interventions contains methodological problems, but that the treatments work nevertheless. The question for Dr. MacCoun was what policymakers should make of this discussion.

Dr. MacCoun addressed his skepticism about interventions, specifically about the Swiss experiment with heroin maintenance. He noted that the Swiss results were ambiguous because they lacked true random assignment and because heroin maintenance was confounded with provision of other forms of treatment. However, the Swiss experiments demonstrate that heroin maintenance is logistically feasible and provide at least tentative evidence for its benefits.

A forum participant asked whether the Swiss heroin maintenance experiment serves as a lever for getting addicts into treatment and, if so, how do the Swiss measure treatment outcomes. For example, is success measured strictly in terms of abstinence, or is rehabilitation a positive outcome? Dr. MacCoun responded that as a researcher he criticizes the confounding of heroin maintenance with other interventions in the Swiss study. However, on humanitarian grounds, he might celebrate that weakness because it implies that the heroin maintenance program encouraged Swiss addicts to seek other needed treatments.

**Failed interventions.** The results of a National Academy of Sciences (NAS) study suggest that researchers have not done a good job documenting which interventions work, but they can scientifically document those that do not work. In the last quarter of the 20th

century, one of the most important interventions has been to lock up drug offenders and “throw away the key.” Research projects that use this kind of intervention as a control almost always indicate better results for treatment. Foreign interdiction is another failed intervention, as price and purity data indicate. Data are also available on 25 other interventions that do not prevent youths from starting drug use or other deviant behaviors. A key element in a research agenda may be to develop a list of interventions that are popular politically but do not work.

**Successful interventions?** At times in recent history, source-country interdiction has been reported as effective. Examples are the Turkish opium ban and the so-called French Connection. There have also been spikes in prices to which the market adapted immediately. These observations gave rise to the question of whether data indicate reductions or increases in crime correlating with the price fluctuations. Impulse-response analyses of these events, exemplified by an NAS review, indicate that little is known about the suggested correlations.

**Lack of direct measures of deterrence.** Measurement of the effects of deterrence on retail operations is also lacking. Researchers primarily use price fluctuations as their core index, and that measure is weak. There is no probabilistic sample and researchers rely on Drug Enforcement Administration (DEA) data, which are designed for a different purpose. This calls into question the usefulness of studying price fluctuations as they relate to crime in drug markets.

**Are drug epidemics cyclical?** The dynamics of the drug scene and the constantly changing nature of drug markets raise the fundamental question of whether drug epidemics are cyclical. The time course over which researchers have studied this phenomenon is one and one-half cycles, which is not long enough to attempt a fit with any cyclical model. If drug epidemics are cyclical, researchers should examine what has occurred before the next cycle.

**Event dynamics of the tripartite framework.** The tripartite framework could be applied to research on why a drug user becomes violent in one circumstance but not in another and under what conditions violence does or does not ensue during episodes of drug use. One study borrowed methods from symbolic interactionism and game theory to examine drug transactions. Researchers have tried to understand the sequence of potential to motivation and motivation to action. In other words, they tried to observe a cascading effect in which drugs may take the user from a stable state to an aroused state and then to an aggressive state.

This particular study of drug transactions revealed that drugs have strong psychoactive effects. The researchers examined the mediating mechanisms through subjects’ own narratives, in which they disclosed how they would change their behavior in a

confrontation. When they were under the influence of drugs, they said, the stakes would rise: They would become more boastful, their language would change, and they would misread perceptions of danger or the cues from another person. This research demonstrates that thinking about event dynamics as a framework in which causal factors unfold over time is a promising method for examining this issue.

**Limitations of the tripartite framework.** Researchers need to be aware of problems in applying the tripartite framework as a measurement tool. Although this framework is still important, it was designed to explain connections between drugs and violent crime. In examining relationships between drugs and nonviolent crime, we need to transcend the framework and also use it to understand particular events. With respect to the latter, multidimensional has been the most important category of analysis because things rarely fit neatly into any of the others.

Researchers who apply the tripartite framework also need to go beyond New York City to locations throughout the country to identify a reliable source of data on the drugs-homicide link. The Arrestee Drug Abuse Monitoring (ADAM) instrument contains a drug market section that addresses the characteristics of markets over time, by location, and by comparing indoor with outdoor. Another potential data source is a NIDA-funded international study of the psychoactive and sociobehavioral effects of marijuana use in Amsterdam, San Francisco, and Melbourne.

**Decriminalization and the link between drug use and crime.** What is the link between drug use and nondrug crime? Because drug possession is itself a crime, various types of decriminalization (which are not necessarily the same as free access) will be needed to sever the link between drug use and crime. This point is important from a research perspective because the illegality of drugs is a constant in all research conducted in the United States. Various models address the implications of illegality, such as corruption and market-oriented violence. Opportunities for comparative research should be sought in countries that have decriminalization policies, countries where some drugs are part of the culture and used freely, and in historical work on periods when drugs were legal in the United States. Other research opportunities include the study of legal drugs, such as alcohol, to see how society manages the effects of these widely used substances.

**Researchers' impact on State-level policies.** Researchers' results can influence policymakers and State budgets. Delaware, for example, actively tried to introduce drug treatment into its prison system in the late 1990s. Delaware's attempts were closely associated with drug courts, which are based on the premise that offenders who have extensive criminal histories and signs of addiction will commit less crime if their addiction can be halted. By making treatment part of corrections, the State has changed the definition of crime.

An example of the way the definition of crime can change involves urinalysis conducted among offenders on probation to test for drug use. A positive test counts as a technical violation for which probationers may be returned to jail. With the introduction of the therapeutic approach into prisons, Delaware's Department of Corrections and judges have become sensitive to the implications of positive urinalysis results. Although classified as relapses, positive urinalysis results have become the equivalent of crimes. In this way, research has affected policy as the corrections system introduced treatment and changed the way crime is defined.

**Corruption in models of drug distribution.** A comment was made about corruption in connection with models of distribution. It is essential, in the view of the participant who made the comment, that these models address street-level ethnographic research that found some police on the street to be involved in the drug trade to the extent of having a dramatic impact on how the trade operates. Police corruption plays a dramatic role in the drug trade on both the micro and systemic levels. One reason is that public policy sometimes permits seized assets to devolve to police departments on the basis of their own enforcement activities. A related issue is the way in which police affect or do not affect particular drug markets depending on how they choose to enforce the law.

## **Reports and Feedback From the Roundtable Discussions**

### **Methods, measurements, and datasets**

There is a need for integrated data collection and better measures. Suggested areas for further research include identifying particular local areas for saturation testing of multiple measurement methods and determining how current measures overlap. In the National Household Survey on Drug Abuse (NHSDA), data are gathered from the general population, but other data collections, such as Monitoring the Future and ADAM, are more narrowly targeted. We do not fully understand how the methods used in these surveys overlap. The ADAM program has attempted to include questions in the survey instrument that enable analysts to link ADAM data to data in other surveys.

The validity of self-reports of both crime and drug measures is a significant issue for research. Such issues as subjects' recall and telescoping are addressed in parts of larger studies, but funding enables the testing of the validity of self-reports in only a few studies. The wording of questions, the order in which they are asked, and the effects of the urinalysis itself (in the ADAM program) are possible areas of investigation. Experiments involving random assignment of survey questions offer an opportunity for study as does altering the sequence of urinalysis and survey administration. Interviews with study subjects might produce different results depending on whether the urine specimen is taken before or after the interview.

How DEA data on such elements as price, purity, quality, and signature information can be folded into programs like ADAM is a key issue. Apparently signature analysis can be conducted as easily on urine specimens as on actual samples of drugs. If so, it would enable additional information to be integrated with the ADAM data.

### **Ethnicity and race**

Family and genetic issues as well as race and ethnicity are important for future study. The Human Genome Project may provide data relevant to studying drugs and crime. Researchers must do a better job of articulating the importance of these factors. The public should not be led to believe, for example, that there are single genes related to poverty or violence. The need for more attention to diversity within and among ethnic and racial groups was recognized as a priority. Acknowledging that caution must be used in analyzing the concept of race in scientific research, participants recommended the study of ethnic variation, learned behavior, and culture. The addition of discussions of culture to the three forum papers was also recommended.

We can expect diversity in drug use among different groups, such as Hispanic Americans and blacks. An example of diversity within groups is the drug use patterns of Mexican Americans in the Hispanic American population. Diversity raises complex issues that involve conceptualization in measuring environmental circumstances, conditions, and processes. These issues affect research on ethnicity and on gene-environment interactions. The research community must address the sensitivity of the combination of the issues of genes and race, possibly through formation of a NIDA-NIJ working group.

Several specific issues or phenomena involving ethnicity and drugs offer opportunities for study. An example is the National Development and Research Institutes study of the “blunt generation,” which revealed that black youths in New York City are shifting from crack to marijuana and tobacco. This research can be used as a model to study whether the same transition is occurring outside New York City.

Researchers should be mindful of the factor of religion because, like ethnicity, it has different levels of importance for different ethnic groups and a bearing on criminal behavior as well as drug use. Another area for study is the differential effects of methamphetamine on different ethnic communities. There are few examples in which blacks are represented among either methamphetamine users or casualties of its use. However, research has revealed users and casualties among members of other ethnic groups, particularly Pacific Islanders.

Two research design issues were raised in the roundtable discussion. One had to do with the false belief that there is variation by ethnic group in the extent to which information from self-reports differs from bioassay results. Recent research might be developing evidence that will contradict some of these false beliefs. The other involved IRBs,

protection of human subjects, and the differences in the confidentiality certificates issued by NIJ and the U.S. Department of Health and Human Services (HHS). Discussions between NIJ and HHS about checks and balances in the IRB processes would allow researchers to learn more about pressing social problems that do not necessarily fit the HHS biomedical research model.

### **Policy issues**

Researchers need to examine policies other than those specifically directed at drugs, such as economic, social, and health policies. NIJ and NIDA could consider commissioning a series of multidisciplinary review papers that focus on the potential impact of policies on outcomes. The policy community would be the target audience. Currently, no mechanisms are available to examine policies at the Federal, State, and local levels. We need a database that would enable researchers to examine variations in policy among jurisdictions.

Another important and related area for research is the development of models that transcend econometric models in examining the impacts of policies on outcomes. Researchers have not developed models that examine the impact of public policies on behavioral outcomes and the relationship between drugs and crime. Input from practitioners about the impacts of policies on their constituents may advance this line of investigation.

### **Drug markets**

How do researchers define and measure drug markets? Among the issues considered in the roundtable discussion were the usefulness of such measurements and the benefits to law enforcement agencies from this kind of research. The discussion covered how researchers might measure the harmful effects of drug markets and how to detect changes in those harmful outcomes over time. For example, how would researchers compare the effects of crack markets that proliferated 10 years ago with the effects of the blunt generation today? Nonharmful outcomes and the need to examine how they change over time were also considered. Social control mechanisms operating in markets, the question of whether market stability is desirable, and health issues associated with market stability were also suggested as topics for research.

### **Treatment in the criminal justice system**

The treatment roundtable focused on two measurement issues and two potential interventions. The first measurement issue was dropouts. When drug users undergoing treatment drop out of the program, this affects any evaluation under way because the numbers change. Other disciplines have dealt with the problem by using econometric and other statistical techniques. The participants thought some of these tools should be brought into the drug treatment literature.

They also recommended comparing the effectiveness of different types of treatments used in the criminal justice system, an undertaking for which there is currently no common measure. The Addiction Severity Index (ASI) was discussed, but using the ASI poses problems because of the “past 30-day” questions it includes. Opportunities provided by new technologies for detecting drug use, such as hair testing and sweat patches, were also considered.

Contingency management is an intervention examined in the Greenwood study, which revealed that paying students to finish high school is cost-effective. If this approach is applied to encourage treated prisoners to receive more treatment or to refrain from using drugs once they leave prison, it may offer opportunities for research.

The problem of treating drug-using offenders after release from prison is another intervention issue that could benefit from research. In addition to using contingency management, some States hire case managers to encourage prisoners to continue receiving treatment. Texas, among other States, makes such additional treatment a condition of parole. Research indicates that contingency management has not worked well in the long run because behavior starts reverting to baseline when rewards stop.

The impact of welfare restructuring on the drugs-violence nexus is also a topic for future research. Some inmates were receiving Medicaid benefits, which they were using to pay for drug treatment. Since they no longer receive Medicaid, corrections-based treatment plays a larger role. Outcomes other than refraining from drug use, such as payment of child support, family formation, employment stability, and residential stability, may also be useful as indicators that a former prisoner has addressed problems associated with drug use.

In assessing the effectiveness of treatment programs, the fundamental problem for researchers is obtaining the kind of post-treatment and postrelease data they need. A study under way in Florida is examining this issue in a nonprison treatment setting where researchers have access to measures of criminality and other data. However, these measures may not enable the researchers to effectively differentiate between the treatment programs in which the subjects were enrolled, which include most programs in Florida.

The reporter for the roundtable responded to a followup question about the possibility of requiring treatment providers to track data. He noted that the mandate for the Florida study came from the State legislature, which requires evidence that money spent on treatment produces a result that is more economically valuable to the State than the current expenditures. However, treatment providers cannot respond very effectively to the legislators’ mandate because they do not have the resources to track all the data.

The facilitator told forum participants to imagine a situation in which they are approached by a philanthropist who claimed that he could raise large sums of money if researchers could develop agreed-upon measures of outcomes that were valuable and whose cost was lower than the cost of producing the results. The participants were challenged to find out if they could do so with the interventions they had tested.

In response to the challenge, one participant noted that in some studies of the valuing of drug abuse treatment outcomes, people who are not drug users are asked how much it is worth to them to live in a drug-free and crime-free community. It is not possible to put a monetary value on such issues. Other studies examine outcomes like abstinence or a range of outcomes involving improvements in health, social functioning, and criminal behavior. To provide guidance on improving drug abuse treatment at the program level, NIDA has tried to shift the focus of the research to what the program does, what is unique about it, how it is organized and managed, and what is unique about the treatment delivery system. Another responder stated that if the philanthropist could find a way to support graduates from drug treatment programs who live either in prison or in the community and are otherwise unemployable, guarantee them jobs, and assure them of an income of about \$20,000 per year, there would be much better results than those that researchers are seeing now.

In a followup scenario, the philanthropist is prepared to supply the money for whatever it takes to produce a graduate of a treatment program who was formerly a drug user and in prison and to assure him or her an income of \$20,000 per year. The question for researchers is what is the value to society of 50 of 100 people leaving prison, acquiring job skills, and earning \$20,000 per year 2 years after release? If researchers could specify for the philanthropist the value to society, backing it up with a defensible number, and tell him what it would cost to net 50 successes from the 100 released offenders, he would raise the money for those 50 people. He would have to know and be able to tell his donors, however, the numerical value of those 50 successes.

One participant who responded commented that for almost any intervention, researchers could produce a calculation indicating that the resultant number is better than doing nothing, although there probably is no drug control intervention for whose effectiveness researchers could provide definitive proof 20 years hence. This approach, however, is not a constructive way to make practical managerial decisions and is not the way that businesses, for example, think about such matters. Another responder pointed out that a similar question is not asked about dialysis treatment for end-stage renal disease or liver transplants for people with cirrhosis, although they might persist in behaviors that promote their diseases. Thus, researchers are imposing a standard on drug treatment that they do not impose on other medical treatments.

## **“The Drugs-Crime Wars: Past, Present, and Future Directions in Theory, Policy, and Program Interventions”**

*Duane C. McBride, Curtis J. VanderWaal, and Yvonne M. Terry-McElrath*

Current drug policies have not always been in effect and may not always be in place, and some policy changes have been dramatic. Dr. McBride discussed the historical context in which drugs-crime relationships should be examined. In the 19th century, drug policies in the United States varied enormously. Distribution was relatively open: Imports were regulated but domestically there was some access and even commercialization. Drugs, needles, and syringes were available through the Sears-Roebuck catalogue. In reaction to this openness, many States began to heavily regulate drugs. Officials from some States complained that other States openly sold drugs that they themselves were trying to regulate. The labeling of drug content was instituted and States made many changes in their laws and policies.

### **Discussion: What ideas from the paper are most helpful?**

**Cause and effect in the drugs-crime relationship.** The section of the paper dealing with the cause-effect relationship of drugs and crime suggested an interesting line of inquiry. The forum discussions had looked primarily at the relationship in terms of drug use preceding crime. From that perspective, interventions were assessed on the basis of the effects they might have on drug-related crime that immediately follows drug use. There was no consideration of the early antecedents of drug use and criminal behavior.

Study findings on the antecedents of drug use and criminal behavior reviewed in Dr. McBride’s paper, as well as research conducted by Dr. Anthony on aggression in first-grade students, were cited as examples of areas where further research is needed. Evaluation of classroom interventions revealed that addressing conduct and aggression problems reduced the risk of future drug use, which suggests that deviant behavior may precede drug use.

**History of drug policy.** Participants identified the attention given to the history of drug policy as a strength of Dr. McBride’s paper. The conflict between the puritan and libertarian traditions, which he cited, is played out in current drug policy discussions.

**Collaboration among agencies.** As States develop comprehensive systems to address drug problems in their criminal justice systems, collaboration among agencies becomes more crucial to policy formulation. For example, in the California Department of Corrections’ treatment system, which currently has 7,000 beds, the treatment providers and the corrections unit that operates the system have been meeting regularly for years. Parole officials began attending the meetings only in the past 6 months, however. Parole is an essential policy element because the program includes an aftercare component.

**Using graduated rewards and clients' strengths in drug treatment.** Suggestions were made that graduated rewards, as well as the graduated sanctions mentioned in the paper, should be studied for their use in drug treatment programs. Further, more attention should be paid to the clients' strengths in addition to their needs, problems, and resources. Dr. McBride agreed that inclusion of a strengths-based case management system is crucial to treatment.

**Comorbidity issues.** The comorbidity issues covered in Dr. McBride's paper were considered relevant to the forum discussions of policy and of treatment in the correctional system. As a result of high rates of comorbidity and of deinstitutionalization in the mental health field, some prisons are the major mental health service providers in large urban counties. This situation influences the effectiveness of treatment in correctional settings, and is a situation in which some medical care providers feel more like law enforcement personnel.

**Ballot initiatives and research.** Ballot measures such as California's Proposition 36 address drug policy, and are frequently supported by advocacy organizations that are also interested in research. Social scientists should try to gain currency with these organizations and open an avenue through which the research community can examine these policy experiments and their outcomes. Researchers previously have not made strong connections to those who propose public policy reforms from the perspective of the political right, and the same may now be true for the political left.

**Health versus criminal justice research funding.** The Robert Wood Johnson Foundation is funding a study of Proposition 36 that may become a model for reporting that could affect public policy. The Robert Wood Johnson Foundation focuses on health issues, and its sponsorship of this project indicates that the criminal justice research community is underfunded because a health funding organization is implementing portions of the criminal justice research agenda.

Building collaborations between NIDA and NIJ to study drug enforcement would be an important part of a future research agenda. Such collaboration could address major policy issues, such as variations among States in the intensity of drug enforcement and how strongly they enforce drug prohibitions.

Researchers could also evaluate the effects of different kinds of enforcement, but would need to identify appropriate outcome measures to do so. State-level measures are being developed for NHSDA, but would be inadequate for these purposes because they focus on the prevalence of addiction. The ADAM sample frame is not suitable for this type of project, which would address how enforcement affects drug use. The relationship between drugs and crime, in and of itself, is not as useful as is research that will inform drug policy.

NIJ is primarily a policy research agency that should be addressing such policy-driven issues as alternative enforcement strategies.

**Publishing policy research.** Studies of Proposition 36, changes in the Rockefeller drug laws, or the Swiss heroin experiment do not have perfect control groups and random assignment of subjects because they examine real-world situations. This may limit researchers' ability to publish in the better journals. In addition to providing funding, NIJ and NIDA could increase the demand for policy research by fostering publication outlets.

To obtain funding, grant applicants are required to address scientific design issues. Poor designs submitted to the National Institutes of Health (NIH) may not be acceptable to epidemiologists, but the *New England Journal of Medicine* has published comparative studies of the impact of handgun regulations on homicide and suicide rates in Vancouver and Seattle. Dr. McBride cited these studies, which compared different populations, as examples of flawed designs that would not have received NIH funding but were nonetheless published in a quality journal.

**Funding for secondary data analysis.** Dr. McBride's paper was praised for its list of suggestions for future research, particularly because of the proposal that secondary data analysis could provide a new empirical baseline for study of the drugs-crime relationship. Securing funding for the analysis of NHS data, to assess the extent of drug use or the gateway model has been difficult. The only sources of funding for analysis of ADAM data have been small grants from NIJ or organizations like the Robert Wood Johnson Foundation. Funding agencies spend large sums of money supporting new data collection and relatively small amounts supporting secondary analysis.

### **Discussion: Problematic ideas**

**Policy implementation and evaluation.** Without effective enforcement and implementation, it does not matter which policies have been adopted. With respect to tobacco, there was a great deal of policymaking at the State level, but until there was enforcement, the policies did not make a difference. Dr. McBride's paper suggests that policies directed at club drugs (for example, changes in methamphetamine penalty structures) offer important research opportunities. Researchers have an opportunity to evaluate the effects of these laws and policies from both the criminal justice and the public health perspective.

Dr. McBride noted in his paper that model laws developed by the National Alliance for Model State Drug Laws have not been examined for their effectiveness. This indicates a need for studies of implementation and enforcement. One participant suggested that the forum should be open to the possibility that not implementing current laws might be advantageous in some situations.

References in the paper to the moral tensions surrounding drug policies illustrate how values affect assessment of those policies. An example of those tensions is the different standards of evidence used in assessing new pharmaceutical products and in evaluating controversial new drug policies, such as those based on relaxed enforcement. There is also a reciprocal relationship between drug policy and drug use, because the public, to whom laws and policies are directed, includes the voters who elect the legislators who in turn make the policy. Policy research must take into account that the consumers of policy, or the public, also influence policy.

**Historical roots of current policies.** In Dr. McBride's paper, the juxtaposition of libertarianism on one side and puritan morality on the other resulted in a lack of historical background needed for understanding the current situation. Missing elements include the harm that drugs cause, status battles among people who want their moral beliefs adopted as official policy, and the agendas of interest groups.

In citing an example of the effects of interest-group issues, one participant suggested that if asset forfeiture laws changed so that seized assets were spent on drug treatment rather than enforcement, the statistical portrait of drug use might change. A better understanding of the historical roots of current policies should be included in the research community's policy research agenda. Also suggested for inclusion in Dr. McBride's paper were more material about the racial dimensions of Prohibition, its 19th-century roots, and its current manifestations; and a reference to Tonry's *Sentencing Matters* in the paper's discussion of mandatory minimum sentencing.

**Continuum-of-care treatment models.** Studies of drug addiction as a chronic disorder have implications for treatment models, such as continuum-of-care programs. Current research has established the need for continuum of care, and future research could systematically address the elements of a continuum-of-care model rather than considering adaptation of current models.

In order to provide good continuum of care, medical and social services need to be linked. This would involve coordination among social service agencies, public health agencies, and corrections or other criminal justice agencies. Issues concerning the reintegration of treated drug users into the community should also be addressed in future continuum-of-care research.

**Computer simulations.** Dr. McBride suggested that researchers start thinking about computer simulations. A participant interpreted this to mean creating broad models with many parameters, which would produce many research questions that could be used to generate useful policy analyses. The drugs-crime research field would benefit from a macro effort in multiple places, with multiple perspectives, which would examine policy

concerns with research backing. Modeling would stimulate further work in all areas of drugs-crime research.

**A comprehensive surveillance system.** In his paper, Dr. McBride did not address the need for a comprehensive surveillance system that would enable researchers to detect when peaks in drug-related violence begin. Such a system would allow researchers to study the peaks as they form and also understand why they form. A big peak of violence occurred in the United States in the late 1970s and early 1980s, and another occurred in the late 1980s and early 1990s. Between those peaks was a valley, and a very deep chasm began in the 1990s.

Many explanations have been offered for the peaks, such as changes in drug markets, incarceration rates, community policing, and enforcement of quality-of-life offenses. Ethnographic field stations in high-risk communities, enhanced data collection by police, and a study of medical examiner data were proposed as research topics in this area. These enhancements should be incorporated into a routine surveillance system that would facilitate study of the next peak in violence. Such a system would allow analysis of qualitative observations in conjunction with overdose and arrest data.

**Use of mild drugs is normative for adolescents.** Developmental factors that affect drug use and its relationship with crime had been alluded to in previous forum discussions, but had not been a topic of discussion. Developmental literature on use of mild drugs (alcohol and marijuana, for example) indicates that this behavior is normative for adolescents. These drug-using adolescents do not commit many crimes other than using the illegal substance. If the drug use continues as they grow older and they also move on to using harder substances, problems with other kinds of crime are then observed.

**The role of the family in shaping behavior.** Another topic not adequately addressed was the critical role of the family in shaping behavior. In developmental psychology, interventions are family-based, rather than broad-based population interventions. (An example of the latter is keeping offenders in treatment.) The importance of interactive relationships within the family was illustrated by research on children who have attention deficit hyperactivity disorder (ADHD). When children with ADHD are medicated, the behavior of the parents changes, even if that of the children does not.

**Changes in heritability.** Quantitative-genetics research projects, such as twin-sibling studies, have revealed that changes in heritability occur over time and with respect to gender. Thus, if researchers identify a gene associated with substance use, the association may not hold for all age groups or populations. In addition, the concept of a single gene determining complex behaviors like substance use is unsound.

**Missing data estimation.** Many researchers are working with techniques for estimating missing data. These techniques may produce results more representative of reality than those produced by other methods. Biostatisticians use missing data techniques to model longitudinal data, such as tracking youth drug use and transitions through different stages of drug use. For example, researchers do not assume that dropping out of a study is a random phenomenon. They try to account for it by modeling the dropout process. Many standard statistical methods are built on the assumption that missing data are random, thus young people who drop out would be no different from those who stay in the study. However, in studies of drug use, dropouts often may be incarcerated, in low-income families, or moving.

### **What Do and Don't We Know About the Relationship Between Drugs and Crime? Reaching for Consensus**

The facilitator led a consensus-building exercise in which statements by forum participants about the drugs-crime relationship were accepted, amended, or rejected. Decisions were made according to an iterative process; only ideas on which there was unanimous agreement were approved. The statements concerned either what is known or what is not known about the relationships between drugs and crime.

#### **Consensus statements on what we know about drugs-crime relationships**

*The complexity of drugs-crime relationships is widely accepted and means that the research tools we have been using to study that relationship cannot get us very much further in the next decade.* The complexity of the drugs-crime relationship was accepted as fact. Forum participants arrived at a consensus on the need for new tools, which would include both paradigms and methods, if future research is to elucidate the relationship. The belief that 10 more years of the same type of research currently being conducted would not advance the understanding of the drugs-crime relationship was disputed because some progress has been made.

*We know that we need to know more about the effects of child abuse and spousal abuse on drug use and drugs-crime interrelationships.* The original statement was amended to eliminate a clause on intergenerational effects of abuse on crime and drug use because these effects have not been sufficiently characterized.

*We know that trends in drug use do not parallel rates of incarceration.* The number of people in the United States who are incarcerated has tripled since 1983. There was no consensus on whether most of the increase was due to enforcement of drug laws. The statement was amended to reflect the consensus that we do not know whether the increases in incarceration have resulted in decreases in drug use in particular or crime in general.

*We know that drug use is neither a necessary nor a sufficient cause of nondrug criminal behavior.* The statement was accepted without amendment.

*We know that we need longitudinal data to sort out the relationships between drugs and a host of other causal factors.* The participants could not arrive at a consensus on a statement that cause-and-effect questions can be addressed only by using longitudinal data. It was modified to read that longitudinal studies are important in making cause-and-effect statements. This modification was not accepted, however, and consensus was achieved only on the need for using longitudinal data to elucidate relationships between drugs and many causal variables.

*We know that illegal drug choices tend to vary with social position.* This proposition began as a statement that illegal drug preferences tend to vary with social position. A participant objected, saying that what is available in different markets may determine what options are available to be preferred. The statement was accepted after “preferences” was changed to “choices” and the meaning of the phrase “social position” was clarified. Social position may be affected by, but is not synonymous with, either social class or ethnicity.

*We know that we urgently need local as well as national data (on drug use patterns) to augment the utility of those data for practitioners.* A participant proposed that data on drug-use patterns must be local to be useful because ethnographic and ADAM data show differences by site. For example, methamphetamine use is not a problem in most U.S. communities, but it is the major drug problem in Hawaii and southern California. The audience for data may affect their usefulness; thus, for example, national data may be useful to Federal policymakers. Crossnational data may also be useful in addressing some issues.

Modifications of the consensus statement to the effect that drug-use data need to be local to describe local markets, to be useful to practitioners generally, or to be useful to local practitioners were all rejected. Local data were deemed useful in detecting emerging trends in drug-use patterns. The idea that trends in national data, such as the decline in drug use identified by the Monitoring the Future Study during the 1980s, were not useful was seen as implausible. The statement was amended to reflect a need to augment national data with local data to maximize policy and practice utility. The statement was amended as shown above and accepted by the group.

*We know that given arrest for a drug offense, an African-American is more likely than a white American to be prosecuted; and given conviction, an African-American is more likely to be incarcerated and for a longer time than a white American. These official results do not accurately reflect the racial differences in involvement with illicit drugs.* There was general agreement that this is known to the research community but not to

society generally. There is a need to disseminate the information among policymakers and the forum publication will be a means for doing so.

*We know that a person's drug taking makes him or her more likely to be either a victim or perpetrator of a crime that otherwise would not be committed.* The statement was accepted without amendment.

*We know that incarceration of drug sellers is in large measure offset through replacement by other sellers.* As originally proposed, the statement read that incarceration of drug sellers leads to recruitment of replacements for those sellers. There was no consensus on whether the replacement phenomenon is known to occur or not. One suggestion was to modify the statement to read that a consequence of incarceration of drug sellers is recruitment of replacements. This statement was considered too weak because there could be many consequences. Another proposal was to modify the statement to read that the incarceration of drug sellers is in large measure offset by the recruitment of additional sellers. The word "recruitment," which implied that superior sellers were seeking replacements, was eliminated in favor of "replacement," and the amended statement was accepted.

*We know that the interdiction efforts that have been conducted over the past 20 years have not achieved their goal of substantially reducing street-level access to drugs.* As originally proposed, the statement read that interdiction has had minimal effects on the availability of drugs at the street level. Researchers do not have a sense of the flow of drugs from source countries through transit and arrival zones to markets. Since there is little empirical evidence of how much drug traffic is actually interdicted and how interdiction has affected market availability, the statement was amended as shown above and accepted.

### **Consensus statements on what we do not know about drugs-crime relationships**

*Long-term, intergenerational studies are needed to generate and test causal hypotheses about drugs-crime relationships.* A generation of grandparents as well as parents has been heavily involved with illegal substances and these people now have children or grandchildren. Thus, there are intergenerational subjects who could be studied, but such studies would not necessarily establish cause and effect. A suggestion was made that intergenerational data are needed to evaluate cause-and-effect statements and that they could be used to generate causal hypotheses. The proposed statement was amended accordingly and moved to the do-not-know category.

*We do not know whether genes interact with the environment to make people more or less prone to illegal drug use or addiction.* In the proposed statement, "We do not know how genes interact with the environment to make people more or less prone to illegal drug use

or addiction,” use of the word “how” implied that there is in fact a relationship between genes and drug use. The statement was therefore amended and accepted as shown above.

*We do not know the extent to which the decline in rates of violence in the 1990s was related to changes in the crack cocaine market.* In the proposed statement, “We do not know the extent to which the decline in rates of violence in the 1990s was related to maturation of the crack cocaine market,” there was a risk of tautology in conveying the notion that a market is mature if it is no longer violent. The statement, amended to replace “maturation” with “changes,” was accepted as quoted above.

*We do not know about community involvement with and orientation toward drugs, or how and why those change.* “Community orientation” means what the community thinks of the issue: For example, whether the community cooperates with or opposes the police. The community is divided into subgroups and subsystems that do not interact well. However, New York City today enjoys a collective consensus reflecting dislike and intolerance of heroin injection, crack sales, and crack use. This consensus was absent a decade ago. Inner-city youths in particular routinely register disgust at intravenous drug use and drug selling.

*We do not know the effect of street enforcement on drug market violence.* The proposed statement, “We do not know whether some forms of street enforcement actually increase drug market violence,” was accepted as amended to read as shown here. The phrase “some forms of” was removed.

*We do not know how best to match treatment approaches to the individual needs of offenders.* As originally proposed, the statement read that researchers do not know how to determine which type of drug treatment is appropriate for which type of drug-abusing offenders. It implied that there is always an appropriate treatment. The person who proposed the statement responded that most studies do show a length-of-time-in-treatment effect, regardless of type of treatment. Another objection cited the many drug-dependent and alcohol-dependent persons who mature out of their addiction without formal treatment: Researchers do not know why this happens. Many people arrested as dealers falsely claim that they are users and are offered treatment. In these cases there clearly is no appropriate treatment. The statement was amended to propose matches of treatment services or approaches to the individual patient and was accepted.

*In the aggregate, we do not know if increases in incarceration have resulted in decreases in illegal drug use by the persons incarcerated.* The initial statement, “We do not know if increases in incarceration have resulted in decreases in illegal drug use or crime,” was considered too broad. It appeared to mean that there is no class of persons researchers can describe for whom incarceration results in a decrease in subsequent criminal behavior or illegal drug use. Specific deterrent effects reported in the literature would contradict such

a statement. If the statement were more specific, referring only to particular deterrence effects for drug use, it could be true. The statement also appeared to be an assault on U.S. policy, which is to “lock them up and throw away the key.”

A proposed modification narrowed the statement to make it read that researchers do not know if increases in incarceration have resulted in decreases in illegal drug use by those incarcerated. It was intended to include postrelease drug use by people incarcerated and then released without treatment. There was general agreement that outcomes for individual drug users cannot be predicted, but in the aggregate, postrelease recidivism and relapse rates return drug use to roughly the levels it had been before incarceration. The statement, as clarified and amended, was accepted as reflecting the group’s consensus.

*We do not know enough about the co-occurrence of alcohol and other drugs in the drugs-crime relationship.* There is a great deal of statistical evidence for this kind of co-occurrence, but a lack of understanding of its effects on criminal behavior.

*We do not have accurate price or sellers’ income data for illegal drug sales.* The statement was accepted without amendment.

*We do not know how the different policies implemented in various jurisdictions have produced different outcomes.* Policies vary nationally and by State, and researchers need to know how those variations produce different impacts.

*We do not know what etiologically differentiates drug-using offenders from other offenders.* The statement was accepted as representing the group’s consensus.

### **Statements for which consensus was not achieved**

A statement to the effect that enforcement alone will not reduce drug use or related crime was rejected as uninteresting because few people claim that only enforcement is effective and treatment does not matter. The statement also failed to consider how much effort and resources would be applied to the problem. Given enough resources, law enforcement agencies could reduce drug-related crime.

The group rejected an assertion that crack sales/illegal transactions are among the most common offenses in the United States, although the assertion was supported by calculations indicating that they swamp other kinds of felony offenses. A participant pointed out that each sale produces at least one incident of drug use, so by definition there are at least as many cases of crack use as there are of sales. Another participant cited research in which crack metabolites were detected in ADAM samples. The data show that roughly 90 percent of the cocaine-positive urine specimens were positive for crack. If researchers could estimate the aggregate number of crimes, especially felonies, then the crack sales would probably swamp even thefts, and robberies would be negligible relative

to the number of crack sales. Marijuana sales would not swamp crack sales because many crack users engage in 5 to 10 transactions each day. Other participants disputed these contentions, citing work indicating that the entire universe of cocaine-related transactions would not account for the supposed large number of crimes.

Statements asserting that cause and effect can be determined only by using longitudinal studies, that current beliefs about the effects of drug policies are mainly expressions of ideological preferences rather than scientific evidence, and that development of low-toxicity substitutes for marijuana and alcohol are precluded by the Schedule I requirements in Federal law were also stricken.

## **Discussion of Areas for Future Research**

### **Discussion: What research in this area do you think is most important?**

The following topics are areas of research that the forum participants considered the most important objectives for future study.

**Long-range cost-benefit analyses.** Long-range cost-benefit analyses of policies on drugs and crime are needed. Such work would address various interventions, including those that have already been attempted (such as incarceration). Inclusion of policy simulation studies was suggested because they could be used to simultaneously produce cost-benefit analyses as well as many other insights.

**Secondary analyses of ethnographic data.** Secondary analyses of ethnographic databases from different cities should be conducted to examine data collected during the peak years of the crack markets. These studies should include comparisons among drug markets in different neighborhoods or cities as well as prospective studies describing the criminal justice and public health impacts of illicit drugs on selling and using communities.

**Effective, ineffective, and promising policies.** Researchers should conduct studies that document policies that work, that do not work, and that show promise. Long-term incarceration was identified as the most significant policy among those that researchers believe do not work.

**A multicity, multimethod surveillance system.** Prospective approaches that combine ethnographic observations with arrest, drug pricing, and health data could be employed by using field stations in high-risk communities. An ongoing multicity, multimethod surveillance system should be set up. It would focus on drugs and crime by using police data, medical examiner data, and public health data (such as those documenting overdoses, deaths, homicides, and HIV and other sexually transmitted diseases). A suggestion that the crime data be limited to homicides (because the researcher can identify the endings of

cases) was rejected because researchers would want to track changes in drug-use patterns in various places, including those where few homicides occur.

**Ethical implications of genetics research.** The ethical implications of policies based on genetics research in the areas of alcohol, drugs, and crime should be investigated. Scientists have not been responsible about addressing the ethical implications of their research; they should be proactive about the issues raised by genetics research. An agenda or process for bringing experts together to produce a consensus on ethical issues was recommended.

An example of such proposed research is identifying links between genetic susceptibility to drugs or alcohol abuse and various outcomes in the criminal justice system. Researchers need to think in advance about what the policy implications might be, and the ethical implications of those developments should be discussed.

**Drugs, mental illness, and crime.** More work should be done on the relationships among drugs, mental illness, and crime as well as the appropriate interventions. Cognitive dysfunctions were also suggested for study, making this a proposal to conduct research on mental illnesses, cognitive dysfunctions, and drugs (in combination) and their relationships with crime.

**The structure of drug marketing in ethnic communities.** Comparative research on the structure of drug marketing and its implications in different ethnic communities should be conducted at multiple sites. One of the implications to be studied is the extent to which drug marketing results in penetration of sales into the ethnic communities.

**Operational research to improve treatment-outcome studies.** Operational research should be conducted to bring more rigor to therapeutic-justice, treatment-outcome studies. Estimates indicate that up to one-half of hardcore drug users are nominally in the criminal justice system, either as parolees, as probationers, or in pretrial release status. This situation has significant implications for national policy and budget. However, the relevant research literature is inadequate because the programs vary significantly in characteristics and eligibility requirements; many studies measured recidivism rather than relapses, limiting their utility; and some studies are based on nonrandomized comparison groups, which results in data interpretation problems.

Randomized studies employing no-treatment arms are freighted with ethical, legal, and analytic problems that must be addressed within the context of the Code of Federal Regulations (CFR). Under CFR, with its minimal risk requirement, it might not be practical or feasible to conduct these experiments because international review boards (IRBs) will interpret minimal risk stringently with respect to no-treatment arms. However, there may creative, equitable approaches to these kinds of studies, such as conducting

research in locations where scarcity of treatment slots and randomization may provide a fair way to allocate treatment. Random assignment to further treatment for previously treated subjects was suggested as an ethical approach to controlled studies of the effects of length of time in treatment.

**Alcohol and marijuana: Complements or substitutes?** Meta-analyses that assess whether alcohol and marijuana are complements or substitutes would be useful for modeling policy alternatives.

**Drug “consumer price index.”** Methodological research on a so-called consumer price index for illegal drugs was suggested as an important research project. The proposed index would cover retail and wholesale prices and would complement the DEA’s System to Retrieve Information from Drug Evidence (STRIDE) database. Reorganization of current data collection or expansion of STRIDE through random drug purchases may contribute to production of an index.

**Survey policymakers.** A survey of Federal, State, and local policymakers to assess their research needs was proposed. The survey would focus on questions that need to be answered in order to make better policy decisions. The survey could also help build bridges between the policy and research communities.

**Relationships between distributors and consumers.** Research on changes in the relationships between drug distributors and consumers was proposed. The attitudes and orientations of distributors would be investigated with an emphasis on how distribution affects consumption.

**Event dynamics in drug markets.** The event dynamics in drug markets should be studied with an emphasis on the role of peer groups and associations. Peer associations may vary in different ethnic communities and thus affect drug-selling behaviors. The influence of ethnic communities may or may not affect sales in those communities and could be instrumental for marketing in other communities or cities.

The market research could focus on analyzing when drugs cause delinquents to engage in crime, rather than analyzing the actual buying and selling events. This approach would emphasize the drugs-crime relationship rather than the buyer-seller relationship. Drug-selling peer groups observed at different times have been observed first encouraging, then subsequently discouraging their members’ violent activities. This indicates that peer relationships affect the types and frequency of crime.

Extending the focus of the proposed research beyond cocaine to, for example, the marijuana market, was suggested. Marijuana use has been an epidemic for 30 years in the United States but little is known about how it is sold.

**Effects of felony disenfranchisement on minority communities.** The political and social ramifications of felony disenfranchisement laws, which are driven by large numbers of drug-related felony convictions, should be examined for their effects on minority communities.

**Effects of genes and the environment on drugs-crime relationships.** Studies of interactions between drug-using and -selling environments and the psychopharmacological and genetic aspects of drug use should be placed on the research agenda. As genetics research becomes more important in the drugs-crime field, researchers may start touting “drug genes” without conducting research on how people with different susceptibilities function in different environments.

Drugs have certain physiological effects and there probably are certain genetic proclivities affecting susceptibility to those effects. However, the consequences of those proclivities differ according to interactions with the environments in which the drugs are used. The effects on crime and other behaviors may vary in different communities and subcultures within the larger society. There may be stigmatization and other consequences that result from interactions between people’s genetic makeup and the environments in which they live, but people with similar drug genes may respond differently in different environments.

**Not all drug users need treatment.** Allocation of limited resources should be based on research that examines which drug users truly need treatment rather than those whose behavior should be addressed through law enforcement. Researchers should study methods to identify users who require treatment as a way to avoid the negative social consequences of drug use.

**Drug hackers.** Researchers need to investigate a growing group of sophisticated drug users and the more specialized substances available for their consumption. The cocaine problem may diminish substantially as more pharmacologically savvy drug users become more numerous. Amphetamine and barbiturate use has become commonplace; researchers may have to consult pharmaceutical manufacturers and experts in pharmacology to address this phenomenon.

A large segment of mainstream America is involved in using illicit drugs in new ways. Researchers need to change their paradigm of who drug users are and how they behave. A participant volunteered the term “drug hackers” to describe new, pharmacologically savvy drug users. They are similar to computer hackers in that they use drugs in unintended ways, combining many different substances to mix effects.

**Polypharmacy.** Research on polypharmacy, with emphasis on the interactions of licit and illicit drugs, should be included in the research agenda. Studies of interactions between illicit drugs and alcohol are particularly important.

**The dark side of drug enforcement.** Research should be conducted on the negative aspects of drug enforcement. This includes studies of the flow of asset forfeiture funds across enforcement agencies and the degree to which that flow affects enforcement policies.

**Enforcement-induced demand shifts.** Researchers should examine the shift in demand from one drug to another as law enforcement focuses on particular drugs, and the degree to which that shift is helpful or detrimental. In other words, they should examine whether demand is shifting to drugs that are less or more serious in their marketing or crime potential.

**Consequences other than crime.** The research community should study consequences of drug use other than crime, such as mental health effects. The health effects of cocaine and methamphetamine have already been examined.

**Early deviant behavior and drug use.** Researchers need to study how parent monitoring, family cohesion, and family structure affect early deviant behavior and how that might in turn affect affiliation with drug-using peers and drug use. Examination of the onset of criminal behavior following the onset of drug use in monozygotic twins<sup>5</sup> would illuminate the links between drug use and crime. If there is a causal relationship, researchers should see crime starting earlier in the twin who starts drug use earlier.

**Middle-class addicts.** The criminal activities of middle-class addicts, and the social and legal consequences of those activities, should be studied and compared to the criminal activities of low-income addicts. This research would elucidate and deracialize the issues related to the consequences of drug use and crime. The differences between middle-income and low-income addicts in use-to-addiction levels and crime-commitment levels (for both undetected and detected crime) are not known.

**Ethical issues and genetics research.** In the forum on genetics research, participants expressed apprehension about ethical issues raised by genetics research and the need for further study of those issues. Stigmatization and labeling of drug users are major concerns. However, the ability to give patients a small dose of a prescription drug, measure a protein encoded by a gene whose expression is a secondary response to the drug, and use that measurement to predict whether the individual is likely to become dependent on the drug, would aid a physician working in a therapeutic context. Researchers should not oppose taking advantage of these kinds of benefits of the Human Genome Project. Ethical considerations are an important part of good research and should not be considered an impediment, but they also should not be the only consideration.

**Effect of economic development on the drugs-crime nexus.** A study of the effect of changes in the economy on drug use, drug trafficking, and the drugs-crime nexus would

be useful. An example is the economic boom of the 1990s as an explanation for the decline of crime and violence during that period.

**The developmental role of the family in shaping behavior.** There is a need for more research with a developmental focus that assesses the influence of family life on drug use and the drugs-crime relationship. One approach to understanding the role of the family in shaping behavior involves genetic influences on parenting. Some genetically influenced characteristics of children, such as their temperament, affect how their parents treat them. Thus, examination of genetic influences and family life are critical because these interactions are frequently dyadic.

**Continuum-of-care treatment models.** Treatment researchers think that the length of time drug users remain in treatment is the best predictor of treatment success as defined by recidivism or drug use. Many people drop out of treatment at some point in the process. Researchers should measure the impacts of continuum-of-care models on treatment effectiveness.

**Racially disproportionate impacts of drug policies.** The participants discussed whether the research community should address variations in the effects of drug policies on different racial and ethnic groups in American society. The incarceration rate is racially disproportionate, but whether the process leading to that impact involved race-influenced decisionmaking remains controversial and difficult to investigate. Race is often a covariate in analyses of ADAM data but it is not a powerful covariate in explaining dependent variables. Like gender, it frequently washes out when multiple-level controls are used.

Comparisons of data from incarceration or other criminal justice processes with drug-use data reveal gross racial disproportionality. However, it is by involvement in marketing, rather than in drug use, that people become involved with the criminal justice system. Research that includes controls for participation in drug-market activity would be useful in identifying the size of the disparity in racial impact, where it occurs, and what factors contribute to it. Income level, for example, is a strong covariate with race, and the way offenders are treated in the criminal justice system varies by income level. Researchers must separate a variety of race correlates from race itself as factors in racial discrimination in order to determine how much racial disparity is not due to racism and how much is a residual that is directly attributable to racism.

There are also difficulties in classifying people by race. For some research questions, what may be more important is how people are viewed by the police. For example, is their skin color dark enough to be viewed as black, regardless of how they self-identify culturally.

**Underreporting by racial and ethnic groups.** The disproportionate underreporting of drug use by members of some ethnic groups and how this affects research findings are important topics for future research.

**Treatments whose effects differ by race or sex.** Researchers need to know more about how the effect of treatment differs by race. They do not know if there are specific ways to administer treatments that are more effective depending on race or gender. Recent Federal Bureau of Prisons studies indicate that treatments that are effective for men are not working for women.

**Intergenerational discontinuities in drug taking.** Research on intergenerational discontinuities in drug-taking would be useful and would relate to such issues as the blunt generation phenomenon. Researchers are observing similarities in the degree to which new generations buck trends or defy expectations.

**Discussion: What research in this area is urgently needed?**

Forum participants were asked to describe areas of research that they think are most urgently in need of study.

**Ethical issues in drugs and crime research.** Theoretical studies of ethical issues are needed to address the impact of IRBs on drugs-crime research. Researchers must do some rigorous thinking about sound ethical models rather than slavishly borrowing from the clinical trial model used in medical research. That clinical model emphasizes autonomy and informed consent in ways that may not be realistic in drugs-crime research. The research community could convene a consensus-seeking meeting of social and medical scientists to discuss how existing IRB criteria should be modified for social science research.

More empirical research is needed to supplement the work of professional ethicists, whose background in philosophy may not reflect the values of ordinary people, including drug users, and the way in which the latter regard the ethical and moral implications of research conducted with or for them. Survey research could be conducted with the subjects and beneficiaries of drugs-crime research to increase researchers' understanding of the ethical perspectives of various stakeholders.

Social scientists should be included on Federal panels that produce regulations governing research. Although these panels consist of physicians and laboratory researchers, the regulations they formulate are applied inappropriately to social science.

**New statistical methodologies.** Advances in statistical methodology should be used more widely in drugs-crime research. They could be applied to such issues as whether researchers should conceptualize behavior problems as latent dimensions. This would involve arraying people along a continuum of problem behavior or as manifestations of

different classes, such as drug users who do or do not commit violent or property crimes. The statistical tools needed to clarify uses of dimensions, classes, categories, and continua are evolving rapidly, and are interrelated with the missing data issue and selection bias problems. Approaches used by quantitative sociologists and psychologists are already becoming mainstream biostatistical methods.

**Scientific justification for mandatory minimum sentences.** Research on scientific justification for mandatory minimum sentences was suggested, with particular emphasis on studying different mandatory minimums by type of substance. Mandatory minimums have a direct bearing on the racial disproportionality of drug policy impacts. There is an urgent need for research on the marginal cost-effectiveness of mandatory minimums and whether there are sociological justifications for them. This research would involve factors such as the way markets are structured.

**Discussion: What research in this area would be recommended to the best and brightest graduate students?**

Participants were asked to think about areas of research that would offer direction to researchers just starting their careers.

**Interventions for high-risk youths.** Almost no research has been conducted on interventions for high-risk youths who have been arrested. Most treatment outcome studies focus on adult offenders who are already deeply involved in drugs and crime. A large body of evidence assembled over the past 20 years indicates a progression in drug use among arrested youths. At age 12, only a few arrestees test drug-positive. At a slightly older age, drug tests might detect marijuana, and cocaine or heroin often are detected in older youths. Thus, there is a need for research on interventions for younger arrestees during their initial contacts with the criminal justice system. Developmental psychology literature on antisocial behavior, although not specific to drug use, may be a source of information about prevention strategies for intervention with early starters.

**Linking policy interests with established disciplines.** The difficulty in recruiting graduate students who are interested in policy research may be ameliorated by linking policy interests to the traditional concerns of existing academic disciplines, such as economics, psychology, and sociology. For example, research that affects policy might involve the study of labor markets and address such topics as the relationship between licit and illicit wages.

**Policies that affect youth behavior.** Students could study policies that affect young people's behavior, including their involvement in the macro-educational job market and labor opportunities available to them. One area of research to pursue is the possibility that economically, the job market may be better in the illegal than in the legal domain. Students could study policies ranging from economics to education as well as drug-education

prevention. Various aspects of the research could be assigned to members of interdisciplinary teams.

**Interdisciplinary or comparative research.** Graduate study is typically individualistic, which is not consistent with the way research is conducted after graduation. Students should seek interdisciplinary work or the opportunity for comparative studies and not be overly concerned about the topic. They could work on these projects and still establish expertise in a specialized field by publishing some lead author or sole author articles in the journals of a particular discipline.

**The criminal addict paradigm.** Empirical studies of nonuse crimes committed by drug users would follow up on research that suggests the major crime committed by addicts is selling drugs. Researchers found that people who did not have a criminal history before becoming addicted did not adopt criminal behaviors other than drug selling after becoming addicted. The proposed studies may reveal that the amount of crime committed by drug addicts, other than drug use and drug selling, is dramatically lower than conventional wisdom would indicate. Hypothetically, the results would fit a bell curve, with a few people at one end who commit many crimes, a few at the other end who commit a small number, and most subjects in the middle only selling drugs. Researchers need to define this paradigm because of its policy implications.

**The role of cognitive dysfunctions in drugs-crime relationships.** The effects of cognitive dysfunctions (whether they precede or are induced by drug use) on drug users' decisions related to crime and their responses to interventions could be studied. Responses to interventions such as incarceration or treatment, for example, may be a function of cognitive deficits that either precede or follow drug use.

**Rational choice models of drug use.** Students should consult economists and others who study consumer choice behavior for assistance in developing research that examines drug use as a choice among various behaviors. Studies could address the degree to which a young person's decision to use, or not use, drugs is based on benefits to be obtained immediately or in the future.

**Analyze ADAM data.** In the new ADAM survey, large amounts of data have been collected on drug treatment and crime; this information also is connected to census tract information. This valuable data collection presents an opportunity for students to conduct data analysis without collecting data.

**Secondary data analysis.** The best use of graduate students' time might be secondary data analysis using ethnographic or quantitative data. With mentoring and analytical experience, students could become accustomed to working with data and could gain experience with data collection after graduation.

**The effects of moderating factors on accepted theories.** When theories become established or findings are mixed, students should focus on the moderating effects or interaction effects. They should study conditions under which theories offer better or worse explanations for research findings. Moderating factors may cause existing theories to work in some settings but not in others.

**Theory integration within or across disciplinary boundaries.** Students should consider integrating theories within or across disciplinary boundaries by examining how their own theories fit with those of other drugs-crime researchers or theories formulated in other disciplines.

**Methodological integration in drugs-crime research.** Methodological integration, which employs techniques from other disciplines such as epidemiology or geographical information systems, may be useful in drugs-crime research.

**Family and social networks in minority neighborhoods.** The research community needs new models of what constitutes a healthy family. Development of such models could focus on family and social network protective factors for reducing crime and drug use in high-risk neighborhoods. For example, 35 percent of black households are headed by women, but the prevalence of lifetime drug use is lower among black Americans than among white Americans. The models and methods researchers use to study family structure are not useful for explaining drug use and crime in black or Hispanic American communities.

**Club drugs and crime.** Almost everything researchers know about drugs and crime is based on past epidemics of cocaine, heroin, and marijuana use. Little is known about the relationship of club drug use to other kinds of drug use and crime. This potential epidemic involves mainly white, educated, 18- to 25-year-old users.

**Club drugs and the Internet.** People normally start using drugs in the context of their peer group. The Internet may influence use of club drugs.

**Inhalants.** Inhalants/huffing is another category of drug use that should be studied by young researchers.

**Marijuana markets.** Research on marijuana markets was suggested as a separate research topic.

**Policy implications of research findings.** Having investigators discuss the policy implications of their findings and addressing the implications of scaling up successful interventions were suggested as research topics.

**History of drug policy.** Study of the history of drug use and its relationship to crime was suggested as a way to provide perspective on the origins of current drug policies and acceptance of the fact that policies can change over time.

**Comparative international research.** Graduate students should develop fluency in one or more foreign languages, quantitative and methodological skills, and expertise in comparative research in order to conduct dissertation research in a foreign country. Examination of entire drug enforcement regimes will require comparative international research and developing the capacity to conduct this kind of research will be advantageous.

**Comparative research across drug types.** Comparative research across drug types was encouraged. Focusing on the nexus of drugs, crime, and violence, the work would examine which aspects of drugs and their markets give rise to different levels of pharmacological and market-related crime. The ethnographic literature will be important in this kind of research.

**Onset, popularity, and termination of markets for illicit drugs.** Students could study various criminal career paradigms and use them to analyze the creation, duration, and termination of drug markets. This would include a study of the prevalence of drugs that suddenly appear on the market and would produce a history of a particular drug market. It would also extend the study to a number of markets to determine the factors that contribute to onset, popularity, and termination of markets for new illicit drugs.

**The noncriminal drug user.** A suggestion was made that students conduct research on noncriminal drug users.

**Interdisciplinary work involving genetics.** Interdisciplinary research encompassing fields such as genetics was suggested. The methods of other disciplines could be applied in novel ways in the drugs-crime field.

**The effects of interdiction programs.** Exhaustive analysis of interdiction programs and their effects may result in savings on interdiction expenditures.

**Extradisciplinary knowledge.** Graduate students should acquire some knowledge outside their discipline in fields such as pharmacology.

**Prostitution and drugs.** The study of prostitution as a criminal activity related to drugs was suggested as a research topic.

**Future trends.** Students should look beyond the issues that researchers have been studying for the past 20 years and try to assess future trends in the drugs-crime nexus.

**The flexibility and mobility of drug markets.** A study of drug markets could focus on their flexibility and mobility.

**High-functioning drug users.** Studies of drug users who live routine lives and are not involved in crimes other than taking illicit drugs would be an interesting research topic.

**Models and simulations.** Researchers should have graduate students create models and conduct simulations of the effects of alternative drug policies on crime. The work would be methodologically challenging because students would have to understand statistics, econometrics, and simulation software and conduct a literature review for each base estimate to determine whether it is high or low.

## **Closing Remarks**

Dr. Brownstein commented on the need to involve more researchers who are members of minority groups in future discussions of drugs-crime interrelationships. Practitioners and policymakers also could be more involved in the process; the forum would be the first of many discussions about these issues.

Dr. Erinoff thanked Roger Conner for acting as forum facilitator and reminded participants that they may submit additional comments on drugs and crime through an e-mail listserv. She and Dr. Brownstein will moderate the submissions.

Bennett Fletcher, research psychologist at NIDA, reminded the group that drugs and crime research has been important to NIDA since the agency's founding in 1974. He encouraged broadening the agency's criminal justice initiative and vigorous followup of the Forum.

Dr. Hillsman was pleased that the relationship between NIJ and NIDA had been strengthened. She thanked the facilitator, organizers, authors, and participants for their efforts and then adjourned the meeting.

## **Notes**

1. The summary was prepared by CSR, Inc.

2. Manski, F., John V. Pepper, and Carol V. Petrie, *Informing America's Policy on Illegal Drugs: What We Don't Know Keeps Hurting Us*, Washington, DC: National Academy Press, 2001.

3. Genetic polymorphisms are differences in DNA sequences among individuals, groups, or populations. Genes for blue or brown eyes are an example.
4. Diathesis is a condition of the body that makes tissues react in certain ways to certain external stimuli and thus makes them more than usually susceptible to other conditions.
5. Identical twins.